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EXAMINER	
ZHOU, HONG	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/573,548	Applicant(s) ZHOU ET AL.	
	Examiner HONG ZHOU	**Art Unit** 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/27/2006 and 5/2/2007*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, and 8-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Zehner et al (US 2003/0137521, hereinafter Zehner).

Regarding claim 1, Zehner discloses a method (Fig. 8, also see [0148]) for updating images on a bi-stable display (bi-stable electro-optic display 26, Fig. 1), the method comprising:

determining when an update mode of the bi-stable display changes from a monochrome update mode to a greyscale update mode ([0195], lines 10-13, also see Fig. 8, step 308); and

when the update mode changes as indicated in said determining step (when an image update requires gray to gray transitions during the decision step 308, also see [0195], lines 10-12), applying a compensating pulse (the first reset pulse applied during reset period 304' of Fig. 10) to the bi-stable display, the compensating pulse representing an energy based on an energy difference between:

(a) an over-reset pulse (the second reset and the third reset pulses applied during the reset period 304' of Fig. 10 when three reset pulses are used in the reset step 304', see [0170], lines 4-6. The second reset pulse and the third reset pulse have an energy moving particles from white

color state to black color state, then from black color state to white color state) used during the greyscale update mode (white color state to gray level 2 transition, Fig. 10) and

(b) a standard reset pulse (the single pulse for black to white transition, see [0195], lines 3-4. The single pulse has an energy driving particles from black color state to white color state) used during the monochrome update mode ([0195], line 13).

Regarding claim 2, Zehner further discloses the method of claim 1, wherein: applying a compensating pulse comprises applying a compensating pulse (the first reset pulse applied in the reset step 304' has a positive polarity, see table 4) that has the same polarity as a polarity used in the standard reset pulse (the single pulse used for black color state to white color state transition has a positive polarity).

Regarding claim 3, Zehner further discloses the method of claim 1, wherein: applying a compensating pulse comprises applying a compensating pulse that has the same amplitude as the standard reset pulse (the length of the first reset pulse applied during the reset step 304' is equal to the length of the signal pulse used for black to white transition).

Regarding claim 4, Zehner further discloses the method of claim 1, wherein: applying a compensating pulse comprises applying a compensating pulse (the first reset pulse used in the reset step 304', Fig. 10) wherein the pulse duration is the same as a difference between a duration of the over-reset pulse (the length of the second reset pulse and the third reset pulse used in the reset step 304') and a duration of the standard reset pulse (the length of the single pulse used for black to white transition).

Regarding claim 5, Zehner further discloses the method of claim 1, wherein: applying a compensating pulse comprises applying a compensating pulse (the first reset pulse used in the

reset step 304' of Fig. 10) to the bi-stable display prior to a greyscale update waveform (the second reset and the third reset pulses used in reset step 304' and the drive pulse used in writing step 306', Fig. 10) used during the greyscale update mode (white color state to gray level 2 transition, Fig. 10).

Regarding claim 8, Zehner further discloses the method of claim 1, wherein: the energy of the standard reset pulse is sufficient to move particles ([0201], line 4) that form the bi-stable display from a black color state to a white color state, or from a white color state to a black color state ([0195], lines 3-4).

Regarding claim 9, Zehner further discloses the method of claim 1, wherein: the energy of the over-reset pulse (the second reset pulse and the third reset pulse used in the reset step 304', Fig. 10) is more than sufficient to move particles ([0201], line 4) that form the bi-stable display from a black color state to a white color state, or from a white color state to a black color state (e.g., the second reset pulse has an energy moving particles from white color state to black color state and the third reset pulse has an energy moving particles from black color state to white color state, Fig. 10).

Regarding claim 10, Zehner discloses a program storage device (memory unit in controller unit 16b, Fig. 2, also see [0148]) tangibly embodying a program of instructions executable by a machine (controller unit 16B, Fig. 2, also see [0148]) to perform a method (Fig. 8) for updating images on a bi-stable display, the method comprising: determining when an update mode of the bi-stable display changes from a monochrome update mode to a greyscale update mode ([0195]); and when the update mode changes as indicated in said determining step (e.g., when an image update requires any gray to gray transitions, [0195], also see Fig. 8, step

308), applying a compensating pulse (the first reset pulse used in the reset step 304' of Fig. 10) to the bi-stable display, the compensating pulse representing an energy based on an energy difference between:

(a) an over-reset pulse (the second reset pulse and the third reset pulse used in reset step 304' when three reset pulses are used in reset step 304', see Fig. 10, also see [0170], lines 4-6) used during the greyscale update mode (e.g., white color state to gray level 2 transition, Fig. 10) and

(b) a standard reset pulse (the single pulse used for black color state to white color state transition) used during the monochrome update mode ([0195], line 13).

Regarding claim 11, Zehner discloses a display device (Fig. 1), comprising: a bi-stable display (bi-stable electro-optic display 26); and a control (controller 16B, Fig. 2) for updating images on the bi-stable display by determining when an update mode of the bi-stable display changes from a monochrome update mode to a greyscale update mode (see [0195]), and when the update mode changes (e.g., when image update requires any gray to gray transitions, see Fig. 8, step 308), applying a compensating pulse (the first reset pulse used in reset step 304', Fig. 10) to the bi-stable display, the compensating pulse representing an energy based on an energy difference between:

(a) an over-reset pulse (the second reset pulse and the third reset pulse when three reset pulses are used in reset step 304' of Fig. 10, see [0170], lines 4-6. The second reset pulse and the third reset pulse have an energy for white color state to black color state transition and black color state to white color state transition) used during the greyscale update mode (white to gray level 2 transition) and

(b) a standard reset pulse (the single pulse used for black color state to white color state transition, [0195], lines 3-4) used during the monochrome update mode ([0195], line 13).

Regarding claim 12, Zehner further discloses the display device of claim 11, wherein: the bi-stable display comprises an electrophoretic display ([0020], lines 1-2).

Regarding claim 13, Zehner further discloses the display device of claim 11, wherein: the display device comprises an electronic reading device ([0199], lines 16-18).

Regarding claim 14, Zehner further discloses the display device of claim 11, wherein: the display device comprises a sign ([0077], line 7).

Regarding claim 15, Zehner discloses a method (Fig. 8) for updating images on a display device (bi-stable electro-optic display 26, Fig. 1), the method comprising: applying a greyscale update waveform (the second and the third reset reset pulses used in reset step 304' and the drive pulse use in writing step 306', Fig. 10) to the bi-stable display (26, Fig. 1) during a greyscale update mode (white color state to gray level 2 transition, Fig. 10); and applying a monochrome update waveform (the single pulse for black clor state to white color state transition, [0195], lines 3-4) to the bi-stable display during a monochrome update mode ([0195], line 13); wherein: the monochrome update waveform includes a standard reset pulse (e.g., the single pulse for black to white transition, [0195], lines 3-4) and the greyscale update waveform includes an over-reset pulse (e.g., the second reset pulse and the third reset pulse used in reset step 304' of Fig. 10).

Regarding claim 16, Zehner further discloses the method of claim 15, wherein: the energy of the standard reset pulse is sufficient to move particles ([0201], line 4) that form the bi-stable display from a black color state to a white color state, or from a white color state to a black color state ([0195], lines 3-4).

Regarding claim 17, Zehner further discloses the method of claim 15, wherein: an energy of the over-reset pulse (the second reset pulse and the third reset pulse used in the reset step 304' of Fig. 10) is more than sufficient to move particles ([0201], line 4) that form the bi-stable display from a black color state to a white color state, or from a white color state to a black color state (e.g., the second reset pulse has an energy moving particles from white color state to black color state and the third reset pulse has an energy moving particles from black color state to white color state).

Regarding claim 18, Zehner further discloses the method of claim 15, wherein: an energy of the over-reset pulse is substantially greater than an energy of the standard reset pulse (the second reset pulse and the third reset pulse have an energy moving particles from white color state to black color state and then from black color state to white color state, while the single pulse has an energy moving particles from black color state to white color state).

Regarding claim 19, zehner discloses a program storage device (memory unit in controller unit 16b, Fig. 2, also see [0148]) tangibly embodying a program of instructions executable by a machine (controller unit 16B, Fig. 2, also see [0148]) to perform a method (Fig. 8) for updating images on a bi-stable display (bi-stable electro-optic display 26, Fig. 1), the method comprising: applying a greyscale update waveform (the second and the third reset pulses used in reset step 304', Fig. 10) to the bi-stable display during a greyscale update mode (e.g., white color state to gray level 2 transition); and applying a monochrome update waveform (the single pulse for black color state to white color state transition, [0195], lines 3-4) to the bi-stable display during a monochrome update mode ([0195], line 13); wherein: the monochrome update waveform includes a standard reset pulse (e.g., the single pulse for black to white transition,

[0195]) and the greyscale update waveform includes an over-reset pulse (e.g., the second reset pulse and the third reset pulse used in reset step 304', Fig. 10).

Regarding claim 20, Zehner discloses a display device, comprising: a bi-stable display (bi-stable electro-optic display 26, Fig. 26, Fig. 1); and a control (controller 16B, Fig. 2) for updating images on the bi-stable display by applying a greyscale update waveform (the second and the third reset pulses used in reset step 304', Fig. 10) to the bi-stable display during a greyscale update mode (e.g., white color state to gray level 2 transition, Fig. 10), and applying a monochrome update waveform (the single pulse for black to white transition, lines 3-4) to the bi-stable display during a monochrome update mode ([0195], line 13); wherein: the monochrome update waveform includes a standard reset pulse (e.g., the single pulse used for black to white transition, [0195], lines 3-4) and the greyscale update waveform includes an over-reset pulse (e.g., the second reset and the third reset pulses used in reset step 304', Fig. 10).

Regarding claim 21, Zehner further discloses the display device of claim 20, wherein: the bi-stable display comprises an electrophoretic display ([0020], lines 1-2).

Regarding claim 22, Zehner further discloses the display device of claim 20, wherein: the bi-stable display comprises an electronic reading device ([0199], lines 16-18).

Regarding claim 23, Zehner further discloses the display device of claim 20, wherein: the bi-stable display comprises a sign ([0077], line 7).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al (US 2003/0137521, hereinafter Zehner) in view of Amundson et al (US 2005/0062714, hereinafter Amundson).

Regarding claim 6, Zehner fails to disclose the method of claim 5, wherein: the greyscale update waveform comprises shaking pulses, followed by the over-reset pulse, followed by a drive pulse. However, Amundson discloses a method for driving a bi-stable electro-optic display device similar to Zehner ([0034]), wherein the method comprising appending one or more shaking pulses of alternating polarity to the end of the waveform used for a transition for reinforcing a final optical state ([0068]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of Zehner with the features of shaking pulse as taught by Amundson to append a series of shaking pulses to the end of the first reset pulse used in reset step 304' used for a black to white transition so as to make the desired final optical transition more reliable ([0068]).

Regarding claim 7, Zehner fails to disclose the method of claim 1 further comprising: applying a waveform to the bi-stable display during the monochrome update mode that comprises shaking pulses, followed by the standard reset pulse. However, Amundson discloses a method for driving a bi-stable electro-optic display similar to Zehner ([0034]) wherein the method comprising appending one or more shaking pulses of alternating polarity to the end of a waveform used for a transition for reinforcing a final optical state ([0068]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

combine the method of Zehner with the features of shaking pulses as taught by Amundson to append a series of shaking pulses to the end of all optical transitions during the monochrome update mode so as to make the desired final optical transition more reliable ([0068]).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The US 2005/0270261 discloses a method for updating images on a bi-stable display with various update waveforms.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.Any inquiry concerning this communication or earlier communications from the examiner should be directed to HONG ZHOU whose telephone number is (571)270-5372. The examiner can normally be reached on Monday through Friday 8:30 A.M. - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571)272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. Z./
Examiner, Art Unit 2629

/Amare Mengistu/
Supervisory Patent Examiner, Art Unit 2629